

IN THE CLAIMS:

1 Please cancel claims 117 through 123, without prejudice.

2 117 -123 (Cancelled).

1 124. (Currently Amended) A direct oxidation fuel cell, comprising:

2 a) a membrane electrode assembly including a protonically conductive, elec-
3 tronically non-conductive membrane electrolyte having an anode aspect and an opposing
4 cathode aspect; and

5 b) a metallic layer component disposed generally adjacent to said membrane
6 electrolyte that limits the mass transport of liquid reactants to the membrane electrolyte,
7 said metallic layer component being fabricated of microscopic particles that have been
8 heated and bonded together such that openings are created wherein the size of said open-
9 ings is determined by the diameter of the particles, and the diameter is chosen to allow
10 various reactants to pass through as desired.

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2 125. (New) The direct oxidation fuel cell as defined in claim 124 wherein said metallic
3 layer component is treated at least in part with either at least one of a hydrophobic treat-
4 ment or a hydrophilic treatment creating a pattern of hydrophobic areas and/or hydro-
5 philic areas in a desired configuration to facilitate transport of reactants and products to
6 and/or from the protonically conductive membrane.

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2 126. (New) The direct oxidation fuel cell as defined in claim 124 wherein said metallic
3 layer component is disposed adjacent said anode aspect of the membrane electrolyte and
4 said liquid reactant limited by said metallic layer component is liquid methanol, or a liq-
5 uid methanol solution.

1 127. (New) The direct oxidation fuel cell as defined in claim 124 wherein said metallic
2 layer component is disposed adjacent to said cathode aspect of the membrane electrolyte
3 and portions of said layer are treated with a hydrophilic substance to encourage water to
4 flow in predetermined directions, and portions of said component are treated with a hy-
5 dropobic substance to encourage oxygen to flow in predetermined directions in said fuel
6 cell.